



S. Hahn
10/718,127

SPECIFICATIONS

TITLE OF INVENTION:

One Degree Four Axis Gimbal Free Gyro Toy

[ADD ①]
③

CROSS REFERENCE TO RELATED APPLICATIONS:

The inventor has determined that the invention has not been under "patent" or "patent pending" to the extent allowable through preliminary search.

BACKGROUND OF THE INVENTION:

The toy production field has a definitive edge upon utilizing ideas of physics for introduction to the general public. Utilization of "gyroscopic" principle has been evinced within toys ranging from cars (US #4556396- circ.1985), to conveyor belt exaction of disks (US #4118031- circ.1975), including rotatable disks upon stationary vertical axis (US #01781333- circ.1930). Utilization of "centrifugal" force to elicit activation of specific toy element (US #6413144- circ.2000) has also been employed.

The developments of these toys are drawn from one discerning principle- single axle concentration and stability of axis. In specific "gyroscopic" principle, the axis employment range has been from one (in stabilization- US #5237450- circ.1992) to three (in standard rotary devices). However, when considering tendency of motion, specifically through pressure applied upon inertia points, the stability of axis becomes faulted and non-precession, thus to void effect in "gyroscopic" continuum.

note:
pg ③ missing (original)
(included in
amendments)

BREIF SUMMARY OF THE INVENTION

The device herein invented depends upon the "gyroscopic" principle as opposed to primary centrifugal force in the following manner: (1)The axle and subsequent housing components are constructed at inclination as opposed to a unilateral vertice; (2)The device is motivated by natural human wrist and arm tention as opposed to motorized activation ; (3)a point of inertia does exist, and may be relocated by tension and pressure upon the axle rod housing.

Through utilization of such "gyroscopic" principle, coupled with a four-axis gimbal free design, the device herein shall create a "helix" range from one to four, with the appearance of an additional two "helix" due to specified weight placement. The solution for problems of non-precession and continuum depends upon the skill of the user, and the construction can be imbibed for players of all ages.

[ADD ③] —

DESCRIPTION OF INVENTION

As weights and measures are integral to the activation of this device (FIG. 1), the inventor has seen fit to include all applicable measurements as have been available at the time of conception to assist in the ease of construction for those who desire to investigate this device beyond the initial specification.

[ADD ④] —

~~I. Materials Composition~~

- ~~1. An aluminum and/or steel alloy~~
- ~~2. A nylon polymer may be used in construction of entire device, or just upon specific areas as mentioned, infra. (*)~~

Description, cont'd.

~~4.1 Lockplate (w)~~

- ~~a. diameter- 2.0~~
- ~~b. distention rate from cone top base- 18.6 degrees (total from cone initiated diameter- 52.595 degrees)~~
- ~~c. length of distention- 0.5~~
- ~~d. width ratio- 0.5/0.25 distention~~

~~4.2 Lockplate (w)- two parts consisting of:~~

- ~~a. 0.1 width flat plate (a) to connect to~~
- ~~b. 0.5 length distention plate with 1.0 width flat plate (b)~~

~~5.1 Flywheel (x) *~~

- ~~a. diameter- 3.0~~
- ~~b. width- 0.3~~

~~5.2 Flywheel (x) two parts consisting of:~~

- ~~a. top mount plate 0.1 width~~
- ~~b. bottom fit to house lockplate~~

~~6.1 Flywheel (y) *~~

- ~~a. diameter- 3.0~~
- ~~b. width- 0.2~~

~~6.2 Flywheel (y)- two parts~~

- ~~a. bottom mount plate 0.1 width~~
- ~~b. top flush with bottom of flywheel (z)- 0.1 width~~

Description, cont'd.

~~2.1 Flywheel (2) *~~

~~a. diameter- 2.0~~

~~b. width- 02~~

~~7.2 Flywheel (2) one part~~

~~a. solid flush flywheel~~

~~8.1 Chain- four total sets~~

~~a. each total length- 17.50~~

~~b. tensile strength 05oz. per 02~~

~~c. air flow ratio single (solid/open) 1/3~~

~~8.2 Chain increments- 2 sets of 2 differentiated
measure~~

~~a. set each line between 1.170 and 1.180 apart
(1/2 in.)~~

~~b. set doubling at the following:~~

~~b1. from top- 6.0 (2 and 1/4 in.),~~

~~connect, 5.50 (2 in.), connect~~

~~b2. from top- 3.50 (1 and 3/8 in.),~~

~~connect, 3.0 (1 and 1/8 in.), connect~~

~~c. set single attachments at the following:~~

~~c1. for 6.0 at end of b1 connection and;~~

~~a. attach to balance (ref. no. 11a2)~~

~~c2. for 3.5 (1 and 3/8 in.) at end of b2
connection, and;~~

~~a. attach to balance (ref. no. 11a1)~~

~~and,~~

~~b. attach final 4.50 length (1 and
6/8 in.) to balance (ref. no.~~

~~11a2)~~

~~d. For single chain attachments- all shall occur in
uniform upon either the right or left side of
lower bar attachments-~~

Description, cont'd.

~~9.1 Chain connectors and bars~~

~~a. diameter-~~ 01

~~10.1 Double chain joiners-Cubes~~

~~a. cubic measurement at face-~~ 045

~~9.2/10.2 Chain bar connectors/joiners-~~

~~a. Could supplement hooks for bar/cube
attachments by doubling weight at bar/cube
attachment areas (see tensile strength for
evaluation)~~

~~11.1 Chain balances *~~

~~a. weight(s)- (a1)03oz/(a2)02oz~~

~~b. air flow ratio (solid/open)- (b1)3/1-(a2)1/1~~

~~11.2 Balance weights *~~

~~a. construct of most any light weight nylon or
aluminum, shall maintain solid/open air flow
ratio as described.~~

Description, cont'd.

~~12.1 Axle housing unit for axle rod (y)~~

~~a. total length- 3.50~~

~~12.2 Axle housing for axle rod (y)~~

~~a. top area of housing .06 diameter, .06 length~~

~~b. mid area of housing .045 diameter, .045
length~~

~~c. bottom area of housing .085 diameter, 1.950
length (.05 threadable allowance for outer
handle attachment)~~

~~d. .07 threaded open rod for access to weight ball
at upper area of bottom housing unit~~

~~e. housing shall be inserted into outer handle by
means of threaded/threadable rods in
increments of .50, .70, .90 lengths.~~